School Bus Electrification

Replace diesel school buses with electric school buses, which have zero tailpipe emissions.

Path Forward Priority: Now (2019-2022)

Status: Partially Complete

Accomplishments to Date

- 2019: Mecklenburg County Air Quality (MCAQ) staff organized an electric bus information session for local school district fleet managers. At the event, Thomas Built Buses (of High Point, NC) demonstrated their new, fully-electric “Jouley” school bus (pictured above), including capabilities of a cleaner, quieter electric school bus.
- 2019 – 2021: Air Quality staff have worked with local school districts and the NCDPI to gauge interest in, and identify funding for, electric school buses in the Charlotte region. North Carolina Department of Public Instruction (NCDPI) has embraced replacement of diesel school buses in each of the 100 counties in North Carolina with electric school buses as funding allows.
- 2020: NCDPI secured funding from Phase 1 of the VW Settlement Funds to purchase 2 electric school buses in the Charlotte region (Rowan and Cabarrus counties) which are planned for service in 2022.
- 2021: NCDPI has applied for additional VW Settlement Funds to purchase 2 electric school buses for Mecklenburg County.
Next Steps:

- Continue discussions with regional and state school district staff to determine timelines and additional funding sources for incorporation of electric school buses into their fleets.
- Identify and promote funding to defray the cost of new electric school buses and charging infrastructure.
  - Phase 2 of the NC DEQ’s VW Settlement funds will open in March 2022. NCDPI will apply for additional electric school buses within the Charlotte Region
- Work with local school districts and the NCDPI to create a school bus replacement schedule that prioritizes the highest emission bus(es) for replacement first.
- Map areas with higher than stage-average diesel PM emissions and provide that summary to decision makers.
- Request decision makers target prioritize electrification projects that operate in/serve area identified in above.

Stakeholders: Regional School Districts, N.C. Department of Public Instruction, N.C. Division of Air Quality

Funding Opportunity: VW Settlement Funds, EPA-DERA Funding

Staff Contact: PJ McKenzie, Paul.McKenzie@MeckNC.gov, 980-314-3374
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June 2021
Next Steps:

- Continue discussions with regional and state school district staff to determine timelines and additional funding sources for incorporation of electric school buses into their fleets.
- Identify and secure funding to defray the cost of new electric school buses and charging infrastructure.
- Work with local school districts and the NCDPI to create a school bus replacement schedule that prioritizes the highest emission bus(es) for replacement first.
- Evaluate the racial equity impact of the strategy.

**Stakeholders:** Regional School Districts, N.C. Department of Public Instruction, N.C. Division of Air Quality

**Funding Opportunity:** VW Settlement Funds, EPA-DERA Funding

**Staff Contact:** PJ McKenzie, Paul.McKenzie@MeckNC.gov, 980-314-3374
Implementation Plan

School Bus Electrification

Existing Efforts:

- In February 2019, Air Quality staff organized an electric bus information session for local school district fleet managers. At the event, Thomas Built Buses (of High Point, NC) demonstrated their new, fully-electric “Jouley” school bus, including capabilities of a cleaner, quieter electric school bus.
- Air Quality staff have worked with local school districts and the N.C. Department of Public Instruction (DPI) to gauge interest in, and identify funding for, electric school buses in the Charlotte region.

Stakeholders: Regional School Districts, N.C. Department of Public Instruction, N.C. Division of Air Quality

Funding Opportunity: VW Settlement Funds

Next Steps:

- Assist local school districts with applying for VW funding, in consultation with DPI.
- Research other grant funding options and assist with applications as necessary.

Staff Contact: PJ McKenzie, Paul.McKenzie@MeckNC.gov, 980-314-3374
The Idea: School Bus Electrification

- Replace diesel-powered school buses with electric buses.
- The first electric school buses will be manufactured in 2019.

The Action:

- Identify and secure funds to defray the cost of new electric school buses and charging infrastructure.
- Work with local school systems to develop a bus replacement schedule that prioritizes the highest emitting buses for replacement first.

The Pollution Source: 0.1% of NOx come from school buses¹

The Cost-effectiveness: $4,695/lb of NOx²

The Factors:

- Reduces children’s exposure to diesel emissions. Children are a “sensitive” population.
- Each project has a larger impact than a passenger vehicle but less than a transit bus.
- There are fewer school buses than cars, but more school buses than transit buses.
- Public-facing project that could spread awareness/information to residents.
- As the power grid changes to lower emission/renewable fuels, overall emissions will decrease further.
- PM – Low co-benefits
- GHG – Medium co-benefits

¹ 0.07 tons/day or NOx. Source: Revised Maintenance Plan For The Charlotte-Gastonia-Salisbury, North Carolina 2008 8-Hour Ozone Marginal Nonattainment Area (July 2018)
² Based on one year of NOx reductions; assuming $200,000 per bus (this is a new technology that does NOT have a definite price at this time).